Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Currently amended) A method for forming contact plugs on active regions of a semiconductor device, the method comprising:

forming a plurality of gate lines on a substrate;

implanting first dopants of a first conductivity type into the substrate using the gate lines as a mask to form a plurality of cell junctions, each gate line being provided between two cell junctions;

forming a buffer layer over the cell junctions, the buffer layer having a thickness of more than 200 Å; ~~and~~

implanting second dopants of the first conductivity type through the buffer layer and into the cells junctions using a first energy level to form a plurality of plug ion-implantation regions of a given depth, the plug ion-implantation regions being configured to receive the contact plugs;

implanting the second dopants of the first conductivity type through the buffer layer and into the cell junctions using a second energy level that is different from the first energy level to form the plug ion-implantation regions;

forming a well of a second conductivity type within the substrate, wherein the cell junctions and the plug ion-implantation regions are defined within the well; and

forming a conductive layer over the plurality of plug ion-implantation regions to form a plurality of contact plugs,

wherein the buffer layer is configured to enable a higher implantation energy to be used to implant the second dopants to the given depth, so that a concentration profile of the second dopants has a reduced slope.

2. (Previously Presented) The method as recited in claim 1, wherein the second dopants are implanted to form the plug ion-implantation region by employing a blanket ion-implantation technique without using a mask, wherein the plug ion-implantation regions are formed by implanting the second dopants using at least two different energy levels, so that the concentration profile of the second dopants has a reduced slope to suppress a width of a depletion layer from being decreased, the depletion layer being providing between the well and the cell junctions, wherein the well is formed before the cell junctions and plug ion-implantation regions.

3. (Currently amended) The method as recited in claim 2, wherein the blanket ion-implantation process proceeds by employing phosphorus ^{31}P with a dose ranging from about 1 x 10^{12} ions/cm^2 to about 3 x 10^{13} ions/cm^2 and an implantation energy ranging from about 80 keV to about 150 keV, wherein a dosage used for the blanket ion implantation process is higher than a resulting dosage of the plug ion-implantation regions to compensate for loss of the second dopants in the buffer layer.

4. (Original) The method as recited in claim 2, wherein the blanket ion-implantation process proceeds by employing ^{31}P with distributed energy within a range from about 80 keV to about 150 keV and dose within a range from about 1 x 10^{12} ions/cm^2 to about 3 x 10^{13} ions/cm^2 both being applied in several sets.

5. (Original) The method as recited in claim 4, wherein the blanket ion-implantation process with distributed energy is carried out in several sets by increasing energy from a high level to a low level but within a range from about 80 keV to about 150 keV.

6. (Previously Presented) The method as recited in claim 1, wherein the buffer layer is a nitride layer, wherein the plug ion-implantation regions are formed by implanting the second dopants using at least two different energy levels, so that a concentration profile of the second dopants has a reduced slope.

7. (Currently amended) The method as recited in claim 6, wherein the nitride layer has a thickness ~~in a range from about 200 Å to~~ of no more than about 500 Å.

8. (Original) The method as recited in claim 1, wherein the first dopant and the second dopant are N-type dopants.

9. (Previously Presented) The method as recited in claim 1, further comprising:

forming a spacer at both sidewalls of each gate line by etching the buffer layer;

forming an inter-layer insulation layer on a resultant substrate structure;

forming a plurality of contact holes exposing a surface of each cell junction by etching the inter-layer insulation layer; and

forming a plurality of contact plugs electrically coupled to the cell junctions th rough the contact holes.

10-18. (Canceled)

19. (Currently amended) A method for forming contact plugs on a semiconductor device, the method comprising:

forming a well of a second conductivity type within a substrate;

forming a plurality of gate structures on the substrate, the gate structures defining a plurality of regions;

implanting first dopants of a first conductivity type into the regions defined by the gate structures using the gate structures as a mask to form a plurality of cell junctions, so that each gate structure is provided between two cell junctions;

forming a buffer layer over the regions defined by the gate structures, the buffer layer having a thickness of more than 200 Å; and

implanting second dopants of the first conductivity type through the buffer layer and into the regions defined by the gate structures using a first energy level to form a plurality of

plug ion-implantation regions of a given depth, the plug ion-implantation regions being configured to receive the contact plugs; and,

implanting the second dopants of the first conductivity type through the buffer layer and into the regions defined by the gate structures using a second energy level that is different from the first energy level to form the plug ion-implantation regions,

wherein the cell junctions and the plug ion-implantation regions are defined with in the well.,

~~wherein the buffer layer is configured to enable a higher implantation energy to be used to implant the second dopants to the given depth, so that a concentration profile of the second dopants has a reduced slope,~~

~~wherein the second dopants are implanted into the substrate via the buffer layer to obtain a concentration profile of the second dopants in the substrate that has a reduced slope, and~~

~~wherein the reduced slope of the concentration profile of the second dopants suppresses a width of a depletion layer from being decreased, the depletion layer being provided between the well and the cell junctions.~~

20. (Currently amended) The method of claim 19, wherein the buffer layer is configured to enable a higher implantation energy to be used to implant the second dopants to the given depth, so that a concentration profile of the second dopants has a reduced slope,

wherein the second dopants are implanted into the substrate via the buffer layer to obtain a concentration profile of the second dopants in the substrate that has a reduced slope, and

wherein the reduced slope of the concentration profile of the second dopants suppresses a width of a depletion layer from being decreased, the depletion layer being provided between the well and the cell junction, and ~~further comprising:~~

~~implanting the second dopants of first conductivity type through the buffer layer and into the regions defined by the gate structures using a second energy level that is different from the first energy level to form the plug ion-implantation regions,~~

wherein the plug ion-implantation regions are formed using at least two different energy levels to provide the concentration profile of the second dopants in the substrate with a reduced slope.

21. (Currently amended) A method for forming contact plugs on a semiconductor device, the method comprising:

forming a well of a second conductivity type within a substrate;

forming a plurality of gate structures on the substrate, the gate structures defining a plurality of regions;

implanting first dopants of a first conductivity type into the regions defined by the gate structures using the gate structures as a mask to form a plurality of cell junctions, so that each gate structure is provided between two cell junctions;

forming a buffer layer over the regions defined by the gate structures;

implanting second dopants of the first conductivity type through the buffer layer and into the regions defined by the gate structures to form a plurality of plug ion-implantation regions of a given depth, the second dopants are implanted using at least two different energy levels, the plug ion-implantation regions being configured to receive the contact plugs; and

forming contact plugs on the plug ion-implantation regions, the contact plugs having substantially planar upper surfaces,

wherein the cell junctions and the plug ion-implantation regions are defined within ~~in~~ the well, and

wherein the buffer layer is configured to enable a higher implantation energy to be used to implant the second dopants to the given depth, so that a concentration profile of the second dopants has a reduced slope.

22. (New) The method of claim 21, wherein a dosage used for the implantation of the second dopants is higher than a resulting dosage of the plug ion-implantation regions to compensate for loss of the second dopants in the buffer layer.

23. (New) The method of claim 21, wherein the buffer layer has a thickness of more than 200 Å.